

Applicant : David R. Maas et al.
Serial No. : 10/775,540
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Attorney's Docket No.: 13506-015001

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously presented) An apparatus for aerating soil, comprising:
first and second shafts rotatably coupled to a carrier, the first and second shafts being substantially parallel and being radially spaced apart by a separation distance;
a first set of soil aeration tines attached to the first shaft, each tine in the first set rotating relative to a ground surface in one of a first set of rotation planes, wherein each tine in the first set fully rotates about the first shaft relative to the carrier without interference from the second shaft; and
a second set of soil aeration tines attached to the second shaft, each tine in the second set rotating relative to the ground surface in one of a second set of rotation planes, wherein none of the second set of rotating planes overlap any of the first set of rotating planes.
2. (Original) The apparatus of claim 1, wherein each tine in the first set of aeration tines extends radially from the first shaft to a distance greater than one-half the separation distance and each tine in the second set extends radially from the second shaft to a distance greater than one-half the separation distance.
3. (Original) The apparatus of claim 1, further comprising a support shaft rigidly coupled to the carrier along a central axis of the carrier.
4. (Original) The apparatus of claim 3, wherein the first shaft is offset from the support shaft such that the first set of tines is operable to revolve about the first shaft without interference from the support shaft.

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5. (Original) The apparatus of claim 3, wherein the second shaft is offset from the support shaft such that the second set of tines is operable to revolve about the second shaft without interference from the support shaft.

6. (Original) The apparatus of claim 1, wherein the soil aeration tines are operative to penetrate and remove a portion of soil from a ground surface.

7. (Previously presented) The apparatus of claim 1, wherein each aerating tine comprises a cutting tube coupled to a blade portion, the cutting tube being laterally offset from the blade portion.

Claims 8-10 (Canceled).

11. (Currently Amended) An apparatus for aerating soil, comprising:

first and second holding means coupled to a carrier, the first and second holding means extending axially from the carrier in substantially parallel relation and being radially offset by a separation distance;

a first soil fracturing means attached to the first holding means, the first soil fracturing means extending radially from the first holding means to a distance greater than one-half the separation distance; and

a second soil fracturing means attached to the second holding means, the second soil fracturing means extending radially from the second holding means to a distance greater than one-half the separation distance;

wherein the first soil fracturing means is staggered relative to the second soil fracturing means such that, during operation of the apparatus, the first soil fracturing means fully revolves about the first holding means relative to the carrier without interference from second soil fracturing means and without interference from the second holding means.

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12. (Original) The apparatus of claim 11, wherein the first and second soil fracturing means are operative to penetrate and remove a portion of soil from a ground surface.
13. (Original) The apparatus of claim 11, wherein the first and second soil fracturing means comprise soil aerating tines having tubes, blades, spikes, or a combination thereof.
14. (Previously presented) The apparatus of claim 13, wherein each aerating tine comprises a cutting tube coupled to a blade portion, the cutting tube being laterally offset from the blade portion.
15. (Original) The apparatus of claim 13, wherein the first soil fracturing means comprises a first set of aeration tines, each aeration tine extending radially from the first holding means.
16. (Original) The apparatus of claim 15, wherein the second soil fracturing means comprises a second set of aeration tines, each aeration tine extending radially from the second holding means.
17. (Original) The apparatus of claim 11, wherein the first holding means comprises a first tine rack and the second holding means comprises a second tine rack.

Claims 18-24. (Canceled).

25. (New) An apparatus for aerating soil, comprising:
first and second shafts rotatably coupled to a carrier, the first and second shafts being substantially parallel and being radially spaced apart by a separation distance;
a support shaft coupled to the carrier along a central axis of the carrier;

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a first set of soil aeration tines attached to the first shaft, each tine in the first set rotating relative to a ground surface in one of a first set of rotation planes, wherein each tine in the first set fully rotates about the first shaft relative to the carrier without interference from the second shaft; and

a second set of soil aeration tines attached to the second shaft, each tine in the second set rotating relative to the ground surface in one of a second set of rotation planes, wherein none of the second set of rotating planes overlap any of the first set of rotating planes.

26. (New) The apparatus of claim 25, wherein each tine in the first set of aeration tines extends radially from the first shaft to a distance greater than one-half the separation distance and each tine in the second set extends radially from the second shaft to a distance greater than one-half the separation distance.

27. (New) The apparatus of claim 25, wherein the first shaft is offset from the support shaft such that the first set of tines is operable to revolve about the first shaft without interference from the support shaft.

28. (New) The apparatus of claim 25, wherein the second shaft is offset from the support shaft such that the second set of tines is operable to revolve about the second shaft without interference from the support shaft.

29. (New) The apparatus of claim 25, wherein the soil aeration tines are operative to penetrate and remove a portion of soil from a ground surface.

30. (New) The apparatus of claim 25, wherein each aerating tine comprises a cutting tube coupled to a blade portion, the cutting tube being laterally offset from the blade portion.

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31. (New) The apparatus of claim 25, further comprising a planetary gear system coupled to the first and second shafts so as to drive the first set of tines to rotate fully about the first shaft and to drive the second set of tines to rotate fully about the second shaft.

32. (New) The apparatus of claim 1, further comprising a planetary gear system coupled to the first and second shafts so as to drive the first set of tines to rotate fully about the first shaft and to drive the second set of tines to rotate fully about the second shaft.

33. (New) The apparatus of claim 11, further comprising means for driving planetary motion of the first soil fracturing means and the second soil fracturing means.